

## **Computer Networking.**

### **COURSE CONTENTS**

#### **PART-1 Basic Terminologies**

1. Definition and History of Computer Networks.
2. Local Area Network (LAN)
3. Metropolitan Area Network (MAN)
4. Wide Area Network (WAN)
5. Basic Network Terminologies.
  - a) Data
  - b) Data rate
  - c) Baud rate
  - d) Peak data rate.
  - e) Bursty data.
6. Peer-to-peer Network Vs Server basic Network
7. Networking Topologies
  - a) Mesh, Bus, Star, Ring, Hybrid

#### **Networking Devices**

- a) Node
- b) NIC
- c) Modem
- d) Access point
- e) Hub ( active Hub, Passive Hub)
- f) Bridge
- g) Switch
- h) Router

#### **Transmission media**

1. Wired media
  - a. Coaxial cable ( 10 Base2 10 Base 5 10Base T, 100Base X)
  - b. Twisted pair cable
2. Unshielded twisted- pair ( Cat1,Cat 2, Cat 3, Cat 4, Cat 5, Cat 6, )
3. Shielded twisted- pair

- a. Fiber optic cable
- 4. Wireless media
  - a. Reasons for wireless network
  - b. Wireless communication with LANs

### **Types of Connectors**

1. RJ45
2. RJ11
3. BNC

### **What is OSI Model?**

- a) Application Layer
- b) Presentation Layer
- c) Session Layer
- d) Transport Layer
- e) Network Layer
- f) Data Link Layer
- g) Physical Layer

### **IP Addresses**

1. IPv4
  - Class A, Class B, Class C, Class D, and Class E, IP addresses
  - Introduction to IPv6
2. Subnets
3. Routed protocols and Routing Protocols (Deification, Similarity, Differences and examples)

### **Practical Portion**

1. Installing and Configuring Modem
2. DSL Configuration
3. Creating Straight Through cable
4. Creating Cross Cable
5. Creating Rollover Cable
6. Basic Commands for Troubleshooting

- a. Ping, ipconfig / all, ipconfig / renew, ipconfig / release, trace route,

**Case Study:**

1. Installing network simulator (packet Tracer)
2. Creating simple network scenarios
3. Configuring PC's with IP addresses subnet mask and gateway
4. Configuring switches by giving name to switches and management IP addresses
5. Connection PCs to switch and then ping each other` that they are working properly.